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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/677,344 10/02/00 SRIDHAR

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PM92/1023

CIENA CORPORATION
LEGAL DEPARTMENT
1201 WINTERSON RD
LINTHICUM MD 21090

EXAMINER

CUNNINGHAM, S

ART UNIT

PAPER NUMBER

3662

DATE MAILED:

10/23/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/677,344

Applicant(s)

SRIDHAR ET AL.

Examiner

Stephen C Cunningham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Therefore, the second photodetector operatively coupled to an input port of said variable optical attenuator, as described in claim 3, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

It appears that the applicant intended to claim a second photodetector operatively coupled to an input port of said dispersion compensating fiber, because that is what is shown in the drawings and the claim reads "said second photodetector sensing ... signals input to said dispersion compensating element.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 3, 4, 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is claimed a second photodetector coupled to an input port of said variable optical attenuator for sensing an optical input power associated with signals input to said dispersion compensating element.

The drawings suggest that the applicant intends to claim the photodetector connected to the input port of the dispersion-compensating element, this is how the examiner will treat this claim for consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita.

Kinoshita teaches all of the components claimed in claim 1 but fails to connect them in the exact order claimed. See figure 4. It would have been obvious to move the dispersion compensating element and the second EDF (erbium-doped fiber) into the position prior to the VAT (variable attenuator) of Kinoshita. Moving the DC (dispersion compensating element) is obvious as an alternative appropriate location assuming the system is such that the power input into the DC is not so high as to cause damage. Moving the EDF would have been obvious in order to compensate for the loss caused by the DC.

3. Claim 2-17 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita as applied to claim 1 above, and further in view of Yang.

With respect to claim 2, Kinoshita fails to teach a memory device and a processing unit connected to the photodetector and memory device. He also fails to explicitly teach photodetector for sensing the input optical power, however the photodetectors are inherent in Kinoshita's signal taps because the optical signals must be converted into electrical signals in order for the control circuits to function. Yang teaches a memory device. See column 4 lines 1-15. It would have been obvious to store the loss value for the DC in the memory in order to avoid the need to continuously drain power out of the system for measuring loss in the DC. Kinoshita teaches processing units. It would have been obvious to combine the processing units of Kinoshita to form a single control circuit in order to allow the control to receive all the data collected from the detectors.

With respect to claim 3, Kinoshita fails to explicitly teach photodetectors and a memory device. Photodetectors are inherent in Kinoshita's signal taps because the optical signals must be converted into electrical signals in order for the control circuits to function. Yang also teaches a memory device for storing a reference value for optical input power, which is indicative of a span loss associated with a preceding span. It would have been obvious to store the loss value for the DC in the memory in order to avoid the need to continuously drain power out of the system for measuring loss in the DC. It would have been obvious to combine the processing units of Kinoshita to form a single control circuit in

order to allow the control to receive all the data collected from the detectors and adjust each of the optical power modifying elements accordingly.

With respect to claim 4, Kinoshita fails to explicitly teach photodetectors, a comparator, and a memory device. Photodetectors are inherent at Kinoshita's signal taps. Yang also teaches a memory device for storing a reference value for optical input power, which is indicative of a span loss associated with a preceding span. It would have been obvious to include a comparator to receive values from the photodetectors on either side of the DC in order to detect changes in the DC loss value (changing DC loss value is well known in the art.) It would have been obvious to store the reference value for the DC in the memory in order to avoid the need to continuously drain power out of the system for measuring loss in the DC. It would have been obvious to combine the processing units of Kinoshita to form a single control circuit in order to allow the control to receive all the data collected from the detectors and adjust each of the optical power modifying elements accordingly.

With respect to claim 5, Kinoshita fails to teach a DC element loss error calculator, a span loss error calculator, a single control circuit coupled to the loss error calculators, and explicit photodetectors. The photodetectors are inherent in the apparatus of Kinoshita. Yang teaches a reference input power which can be converted into a reference span loss.

It would have been obvious to modify Kinoshita to include a reference value in order to determine an attenuation value. It would have been obvious to include a span loss error calculator to adjust for a changing span loss value such as due to environmental factors. It would have been obvious to include a reference value for the DC element loss in order to determine an attenuation value. It would have been obvious to include a DC element loss error calculator to adjust for a changing DC element loss value such as due to environmental factors. It would have been obvious to combine the processing units of Kinoshita to form a single control circuit in order to allow the control to receive all the data collected from the detectors, calculators and reference values and adjust each of the optical power modifying elements accordingly.

With respect to claim 6, it would have been obvious to calibrate the apparatus to find an offset value in order to compensate for any system-induced non-flatness.

With respect to claim 9, Kinoshita teaches a service channel (SV) but fails to teach the optical filter introducing it into the system. Such filters are well known in the art, for example an Asymmetrical Mach-Zehnder filter. It would have been obvious to use the filter to introduce a SV into the system as a design choice.

With respect to claim 10 and 11, it is well known in the art to use multiple filters in order to achieve a flatter signal spectrum.

With respect to claim 12, Kinoshita teaches a service channel but fails to teach it introduced and extracted from the system via the filters. It would have been obvious to introduce and to extract the service channel via the filters in order to obtain information about the system performance.

With respect to claim 14, it would have been obvious to use a dispersion compensating Bragg gratings are a well known alternative to a dispersion compensating fiber.

With respect to claim 16, it is well known in the art to use a 980nm pump to achieve high gain and low noise. It would have been obvious to use 980nm pumps for the first two EDFs and two 1480nm pumps, one copropagating and the other counterpropagating, in order to achieve a low noise and high power output.

With respect to claim 17, it is well known in the art to use 980nm pumps for low noise and high gain and to use dual-propagating 1480nm pumps for high conversion efficiency.

With respect to claim 19, the method is inherent in the obvious apparatus described in the rejection of claim 1.

With respect to claim 20, the method is inherent in the obvious apparatus described in the rejection of claim 2.

With respect to claim 21, the method is inherent in the obvious apparatus described in the rejection of claim 4.

With respect to claim 22, the method is inherent in the obvious apparatus described in the rejection of claim 6.

With respect to claim 23, the method is inherent in the obvious apparatus described in the rejection of claim 8.

With respect to claim 24, the method is inherent in the obvious apparatus described in the rejection of claim 15.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita in view of yang as applied to claim 1 above, and further in view of Sugaya.

A wavelength division multiplexed system is well known in the art. It is well known in the art to use optical amplifiers in series to increase transmission length. Sugaya teaches a device that monitors and controls gain tilt. It would have been obvious to have the amplifier perform tilt control. It would have been obvious to modify the device to have the monitoring portion monitor all of the amplifiers for tilt and then send each tilt control unit a signal to adjust the tilt of each amplifier in order to compensate for variations in the spectrum.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen C Cunningham whose telephone number is 703-605-4275. The examiner can normally be reached on Monday - Friday.

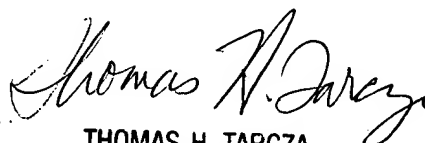
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 703-306-4171. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4180.

October 18, 2001


THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600